

REMARKS

This is a full and timely response to the outstanding non-final Office Action mailed February 26, 2003. Reconsideration and allowance of the application and pending claims are respectfully requested.

I. Restriction Requirement

The Examiner has required the Applicant to elect to prosecute one of two groups of claims allegedly drawn to distinct inventions. In response to the restriction requirement, Applicant elected to prosecute claims 1-37. Applicant hereby acknowledges the Examiner's withdrawal from consideration of claims 38-69.

II. Claim Objections

Claims 13-15, 27-29, and 35-37 have been objected to for use of the term "L* value" without further indicating "shade depth." In response to the objection, claims 13-15, 27-29, and 35-37 have been amended to recite a "shade depth L* value". In view of these amendments, Applicant respectfully submits that claims 13-15, 27-29, and 35-37 are not objectionable.

III. Claim Rejections - 35 U.S.C. § 103(a)

A. Statement of the Rejection

Claims 1-37 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Gadoury (U.S. Pat. No. 6,200,355) in view of Luckenbach (U.S. Pat. No. 4,803,256) or Wessely (U.S. Pat. No. 4,452,607).

The rejection alleges that Gadoury discloses Applicant's invention substantially as claimed with the exception of dyeing the claimed fabric using a beam dyeing process. The rejection alleges, however, that in view of either Luckenbach or Wessely, it would have been obvious to a person having ordinary skill in the art to dye such a fabric using a beam dyeing process. Applicant respectfully traverses this rejection.

B. Applicant's Claimed Inventions

Applicant's claims describe melamine fabrics that have been dyed using a beam dyeing process. As provided in Applicant's claim 1, for example, Applicant claims:

1. A dyed flame resistant fabric, comprising:
a plurality of *melamine* fibers;
wherein the flame resistant fabric has been dyed through a
beam dyeing process in which the fabric has not been
mechanically agitated.

Applicant's claim 1 (emphasis added).

C. Discussion of the Rejection

As acknowledged by the Court of Appeals for the Federal Circuit, the U.S. Patent and Trademark Office ("USPTO") has the burden under section 103 to establish a proper case of obviousness by showing some objective teaching in the prior art or generally available knowledge of one of ordinary skill in the art that would lead that individual to the claimed invention. See In re Fine, 837, F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Accordingly, to make a proper case for obviousness, there must be some prior art teaching or established knowledge that would suggest to a person having ordinary skill in

the pertinent art to fill the voids apparent in the applied reference. It is respectfully asserted that no such case has been made in the outstanding Office Action.

As noted above, the Office Action has rejected Applicant's claims under Gadoury in view of either of Luckenbach or Wessely. Gadoury is cited for generally disclosing dyeing of melamine fabrics. As described in Gadoury, disclosed are melamine blends, such as melamine/aramid blends, that are dyed using a dye bath containing an acid dye in combination with an acid donor. Gadoury, column 1, lines 51-55. However, as admitted in the Office Action, Gadoury makes no mention of using a beam dyeing process to dye melamine fabrics.

To account for this deficiency of the Gadoury disclosure, the Office Action identifies the Luckenbach and Wessely disclosures. Luckenbach discloses a method of altering the surface of a solid synthetic polymer. According to the disclosed method, "polyesters, aramids, and blends of these materials with cotton and wool" are dyed. Luckenbach, column 5, lines 25-31. Luckenbach states that the dyeing apparatus, and therefore the dyeing method, that is used is "not critical" and mentions as examples both beam dyeing and jet dyeing methods. Id., column 5, lines 35-44.

Wessely discloses a process of dyeing shrinkable textile fabrics. According to the disclosed process, "polyester textile fabrics," specifically knitted polyester fabrics, are dyed using a beam dyeing process. Wessely, column 1, lines 6-11. Wessely uses the beam dyeing process because of the shrinking that occurs when knitted polyester textile fabrics are longitudinally pulled and stretched in a jet dyeing apparatus. Id., column 1, lines 23-32.

The Office Action alleges that, in view of the teachings contained in the Luckenbach or Wessely disclosures, it would have been obvious for a person having ordinary skill in the

art to dye Gadoury's melamine fabrics using a beam dyeing process. As is discussed in the following, however, such a person would have no motivation to dye Gadoury's fabrics using a beam dyeing process, even after having considered those teachings.

1. Reluctance in the Art to Beam Dye Melamine Fabrics

Applicant readily admits that beam dyeing is known. However, the fact that others have used beam dyeing is not in dispute. To the contrary, at issue is whether one having ordinary skill in the art would be motivated to use a beam dyeing process to dye melamine fabrics. As described in Applicant's specification, persons having ordinary skill in the art "know" *not* to beam dye melamine fabrics because, it is widely believed, adverse results will be obtained. In particular, the specification provides:

Although beam dyeing is a known method for dyeing other materials, *manufacturers and fabric suppliers recommend against beam dyeing melamine fabrics due to the nature of the melamine fibers. Specifically, it is believed that the melamine fibers decrease the permeability of the fabric to the extent that the dyebath cannot effectively circulate through the fabric, thereby preventing commercially acceptable dyeing.*

Applicant's specification, page 7, line 22 to page 8, line 4 (emphasis added). Evidence on this point is provided in an affidavit of the inventor, Rembert Truesdale. See Appendix A. In view of this prevailing "knowledge" in the prior art not to use beam dyeing for melamine fabrics, a direct teaching of beam dyeing melamine fabrics is necessary to overcome what equates to *teaching away* from beam dyeing of such melamine fabrics. As described in the following, no such direct teaching, or even suggestion for that matter,

to dye melamine fabrics using a beam dyeing process is contained in either of Luckenbach or Wessely.

2. The Luckenbach Reference

As identified above, Luckenbach describes dyeing of polyesters, aramids, and blends of these materials with cotton and wool, *not* melamine. To achieve this dyeing, Luckenbach states that either beam dyeing or jet dyeing may be used and that the dyeing apparatus used is “not critical.” In view of the existing aversion to beam dyeing melamine fabrics, Applicant respectfully submits that Luckenbach’s mere mention of “beam dyeing,” would not motivate a person having ordinary skill in the art to beam dye melamine fabrics such as those described in Gadoury.

Applicant further notes that, as is generally appreciated by persons having ordinary skill in the textiles art, the fact that one dyeing process works with one material does not mean that the process will work with a different material. In fact, the opposite is often true. Therefore, Applicant respectfully asserts that it is not proper to allege obviousness of dyeing a given fabric using a given method in view of a reference that merely teaches using that method (indeed a well known method) to dye a completely different fabric. Such picking and choosing from the prior art greatly oversimplifies the concerns and challenges associated in textile fabrication and dyeing. Because of the nature of the textile art, a specific teaching must be identified that would suggest to a person having ordinary skill in the relevant art to use the claimed process for the *claimed fabric*, particularly in cases (like this one) in which there is a common perception in the art that the process *cannot* be used on the claimed fabric. Luckenbach provides no such teaching.

3. The Wessely Reference

As with the Luckenbach reference, the Wessely reference fails to describe dyeing of melamine fabrics. Instead, Wessely describes, and only describes, dyeing of “polyester textile fabrics.” More specifically, Wessely describes dyeing of knitted polyester fabrics. Once again, Applicant asserts that a specific teaching must be identified that would suggest to a person having ordinary skill in the art to use a beam dyeing process for dyeing a melamine fabric, especially given that there is a common perception in the art that the process *cannot* be used on such fabric.

Beyond this point, Applicant further calls the Examiner’s attention to the *reasons* why Wessely teaches use of beam dyeing. Although, as identified in the Office Action, it is true that Wessely mentions cost savings, the primary reason that Wessely uses beam dyeing is due to the fabric shrinking problems encountered when knitted polyester fabrics are dyed using a jet dyeing apparatus. As described by Wessely:

A common method of dyeing polyester knit fabric is by jet dyeing. In jet dyeing, the fabric is handled in a rope-like manner as it is directed through the dye bath. *The longitudinal pulling and stretching of the rope of fabric during processing causes a reduction in the width of the fabric, and this, together with the relatively high temperatures required for dyeing polyester fibers, contributes to substantial shrinkage of the fabric in the widthwise dimension.* As a result, when the fabric is removed from the jet dyeing machine, it *must be stretched widthwise on a tenter frame* in order to bring the fabric back to the width desired in the finished fabric.

Wessely, column 1, lines 20-32 (emphasis added). Accordingly, Wessely uses beam dyeing to avoid shrinking knitted polyester fabrics. The cost savings identified in the Office Action are achieved because, in that the beam dyeing process avoids excessive shrinking of the knitted polyester fabric, further processing (*i.e.*, stretching on a tenter frame) is then unnecessary.

In view of the specialized application of Wessely's disclosed process, a person having ordinary skill in the art would not be motivated to beam dye Gadoury's melamine fabrics. As a first matter, Gadoury's melamine fabrics are not knitted fabrics. Therefore, Gaoury's fabrics presumably would be less susceptible to unacceptable levels of shrinkage. Second, neither Gadoury nor any of the prior art of record identifies shrinkage of melamine as a significant problem encountered during dyeing.

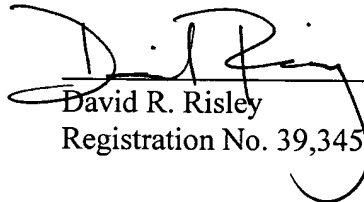
In view of the above, it is clear that a person having ordinary skill in the art would not consider Applicant's claims obvious in view of Gadoury in combination with Wessely.

4. Conclusions

It is clear from the foregoing that Applicant's claims would not have been obvious under Gadoury in view of either Luckenbach or Wessely given that (i) there is a perception in the textiles art that melamine fabrics *cannot* be dyed with acceptable results using a beam dyeing process, (ii) neither Luckenbach nor Wessely teach beam dyeing of melamine fabrics, and (iii) with specific regard to Wessely, beam dyeing is disclosed a means to avoid shrinkage of knitted polyester fabrics. Applicant therefore respectfully submits that the rejections are not proper under 35 U.S.C. § 103(a) and respectfully requests that the rejections be withdrawn.

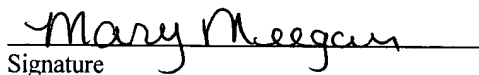
Applicant respectfully submits that pending claims 1-37 are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

Respectfully submitted,


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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to: Assistant Commissioner for Patents, Washington D.C. 20231, on June 26, 2003.


Signature

ANNOTATED VERSION OF MODIFIED CLAIMS TO SHOW CHANGES MADE

The following claims have been amended by deleting the bracketed (“[]”) portions and adding the underlined (“ ”) portions.

13. (Once Amended) The fabric of claim 1, wherein the fabric has [an] shade
depth L* value no greater than approximately 60.

14. (Once Amended) The fabric of claim 1, wherein the fabric has [an] shade
depth L* value no greater than approximately 35.

15. (Once Amended) The fabric of claim 1, wherein the fabric has [an] shade
depth L* value no greater than approximately 25.

27. (Once Amended) The fabric of claim 16, wherein the fabric has [an] shade
depth L* value no greater than approximately 60.

28. (Once Amended) The fabric of claim 16, wherein the fabric has [an] shade
depth L* value no greater than approximately 35.

29. (Once Amended) The fabric of claim 16, wherein the fabric has [an] shade
depth L* value no greater than approximately 25.

35. (Once Amended) The fabric of claim 30, wherein the fabric has [an] shade depth L* value no greater than approximately 60.

36. (Once Amended) The fabric of claim 30, wherein the fabric has [an] shade depth L* value no greater than approximately 35.

37. (Once Amended) The fabric of claim 30, wherein the fabric has [an] shade depth L* value no greater than approximately 25.

APPENDIX A

AFFIDAVIT TESTIMONY OF REMBERT J. TRUESDALE III

The undersigned, Rembert J. Truesdale III, declares and states as follows:

Background Information

1. I graduated from the Military College of South Carolina ("the Citadel") in 1978 with a bachelor's of science degree in Chemistry.
2. In 1989, I graduated from Lehigh University with a master's of science degree in Chemistry.
3. That same year, I began working as an Associate Professor of Chemistry at the United States Military Academy at West Point.
4. Later, in 1992, I began working for Thomaston Mills as a Quality Manager for Dyeing and Finishing. As Quality Manager, I was responsible for selection of all raw materials that pertain to dyeing and finishing. In addition, I was responsible for managing all production and process development.
5. In 1996, I became the Apparel Division Technical Manager for Thomaston Mills. As the Apparel Division Technical Manager, I was responsible for selection of all raw materials, I managed all production and process development, and I managed all fabric quality issues.

6. I began working for my present employer, Southern Mills Incorporated (“Southern Mills”) in 1999 as a Senior Research Chemist and am now a Senior Research Associate and Corporate Environmental Coordinator.

7. As a Senior Research Associate and Corporate Environmental Coordinator, I am responsible for developing new dyeing and finishing technologies for new and existing products, supporting product development efforts of Southern Mills research engineers, acting in the capacity of a company-wide resource for information concerning chemicals and chemical processing, and managing the Southern Mills dyeing and finishing laboratory.

Melamine Fabrics and Beam Dyeing

8. Through my experience in dyeing and finishing, I have become familiar with melamine fibers, their use in fabrics, and dyeing fabrics that contain melamine fibers.

9. Melamine fibers are spun using a highly random process, which results in the fibers having non-uniform diameters and widely-varying staple lengths.

10. Because of the varied nature of melamine fibers, it is generally perceived by persons of skill in the textiles industry that fabrics containing melamine fibers (“melamine fabrics”) act as a filter for dyestuff and, therefore, cannot be dyed with acceptable results through beam dyeing processes in which the fabric is wrapped in a roll around a perforated beam through which the dyestuff is pumped.

11. The perception that melamine fabrics cannot be beam dyed with acceptable results has on multiple occasions been underscored by BASF, which was the primary melamine fiber producer up through June of 2002 and which sold its melamine fibers under the tradename Basofil™.

12. For example, in a conversation with Donna Latham (Ms. Latham), a former Research Engineer for Southern Mills, in September of 1999, Mr. Dean R. Gadoury (“Mr. Gadoury”), Team Leader for Polymers, Research and Development for BASF, expressed that one cannot expect to obtain acceptable dye results if beam dyeing were used to dye melamine/aramid fabric blends. Mr. Gadoury further explicitly recommended against beam dyeing to Ms. Latham.

13. Ms. Latham memorialized her conversation with Mr. Gadoury in a Southern Mills laboratory notebook on page 223. A photocopy of that laboratory notebook page is provided in Exhibit A, which accompanies this document.

14. As indicated in Exhibit A, Ms. Latham noted that Mr. Gadoury stated that “not much success” can be expected in beam dyeing fabrics comprising melamine or “Basofil” and “Kevlar” (an aramid fiber) due to the “filtration effect.” Exhibit A.

15. Ms. Latham further noted that Mr. Gadoury expressed that the “filtration effect” is “due to variable denier” and that “dyestuff cannot get through the roll.” Furthermore, Ms.

Latham noted that Mr. Gadoury expressed that such fabric “acts like a very good filter fabric.”
Exhibit A.

16. Mr. Gadoury reiterated that successful dyeing results cannot be obtained for melamine fabrics using beam dyeing processes in a telephone conversation with me in or around February or March of 2001.


17. During that telephone conversation, Mr. Gadoury further recommended not using beam dyeing processes to dye melamine fabrics, and instead suggested jet dyeing melamine fabrics.

18. Despite Mr. Gadoury’s advice to the contrary, Southern Mills pursued the prospect of beam dyeing melamine fabrics as a means to avoid damage to the fabrics that may be caused from jet dyeing.

19. Various testing was conducted and, ultimately, successful beam dyeing of melamine fabric was achieved.

20. After successful beam dyeing of melamine fabric was achieved, Southern Mills took steps toward preparing and filing the present patent application, U.S. Patent Application Serial No. 09/918,934.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statement and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.


Rembert J. Truesdale III

6/25/03
Date

visitors

9/13/99

Dean Cadore

Beam Dyeing of Basofil/Kerlar

→ Not much success in beam dyeing
"filtration effect"due to variable series
dyestuff cannot get through
the roll.Acts like a very good filter
fabric.Need minimal amounts - minimize
exposureSimulate beam dyeing
in laboratory.

K750

P30

K750

P30

eels,

9/14/99

Mike

3M 10/4

Coverall?

Yoshimura?

CRADA?

GHP stuff?

Basofil Beam Dyeing?

Don Aldridge - Roof Phoenix?

Week of 18th

45 FT + wetting Plan

① Black/Tech → Ker

Peggy Murphy

② Peggy Murphy

③ Allicmonte /
Setup mtg.Peggy w/ab
Mike (10/11)?

Sue/Chris

Duffy - Miller

Cust Resp -

DuPont
YoshimuraBasofil®
mtg.